SECUTRON™
Fire Alarm Systems℠

MR-2312-AT
Fire Alarm Control Unit

INSTALLATION MANUAL

Revision 1 101007
Document #: LT-658SEC

***WARNING**: This manual contains information on limitations regarding product use and function and information on the limitations as to liability of the manufacturer. The entire manual should be read carefully.*

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Introduction

Secutron's MR-2312-AT Annunciator is a 16-circuit annunciator for use with Secutron's MR-2300 Series Fire Alarm Control Panels. Annunciators mount into standard four-gang electrical boxes, and may not be expanded. Control access is by a keyswitch. Each circuit indicator is a bi-colour LED that is automatically configured to match the fire alarm control panel configuration.

Note: For ULC S527 applications the MR-2312-AT is an ancillary display device.

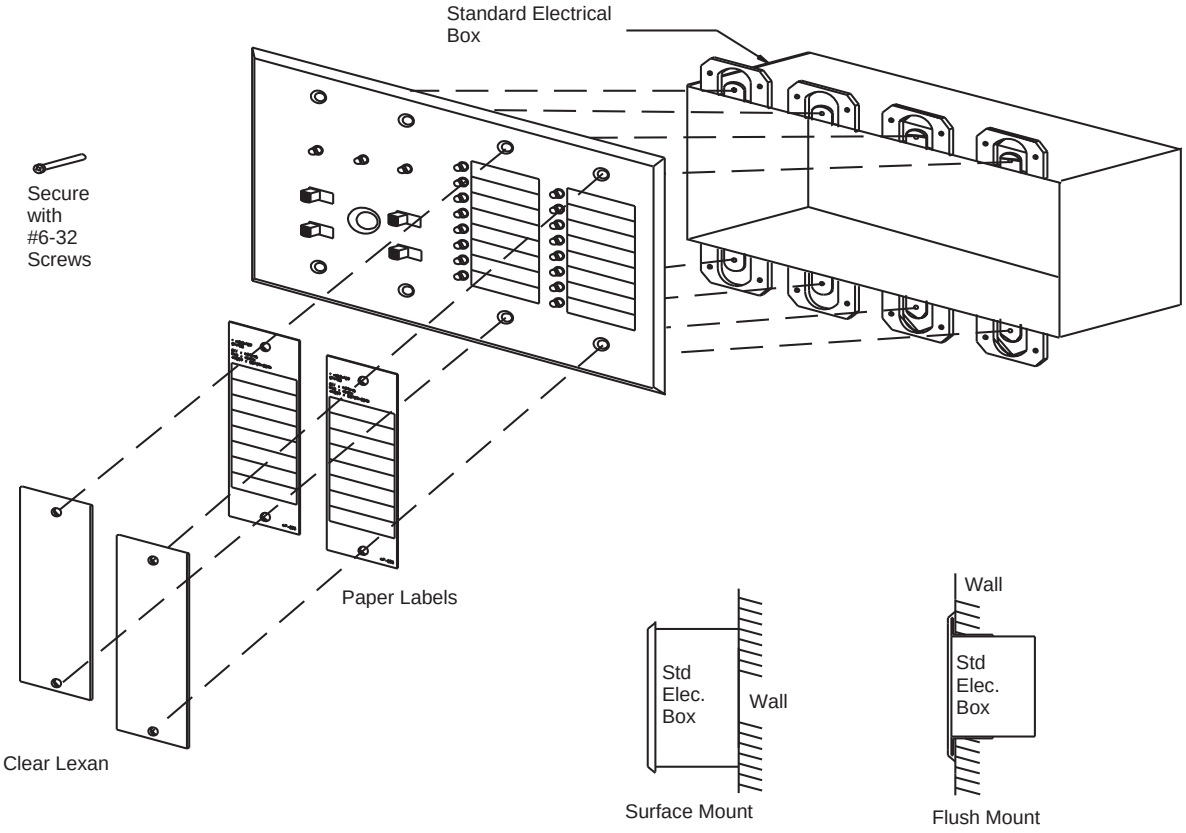
Technical Support

For all technical support inquiries, please contact Secutron's Technical Support Department between 8 A.M. and 5 P.M. (EDT) Monday through Friday, excluding holidays.

Local Phone: 905-695-3545 **Toll-Free Phone:** 1-888SECUTRON

Local Fax: 905-660-4113 **Toll-Free Fax:** 1-888-660-4113

Installation Instructions



Notes:

- The MR-2312-AT is supplied with NP-386 paper labels for zone identification.
- This annunciator displays initiating circuit status only (no individual circuit troubles). Indicating and relay circuits are not remotely displayed. For more details, refer to the manual of the fire alarm control panel that the annunciator will be connected to.
- The MR-2312-AT has a keyswitch to enable the four slide-switch controls. The key should be appropriately secured.

Controls and Displays

For precise definitions of control & display operation, refer to the manual of the fire alarm control panel that the annunciator will be connected to.

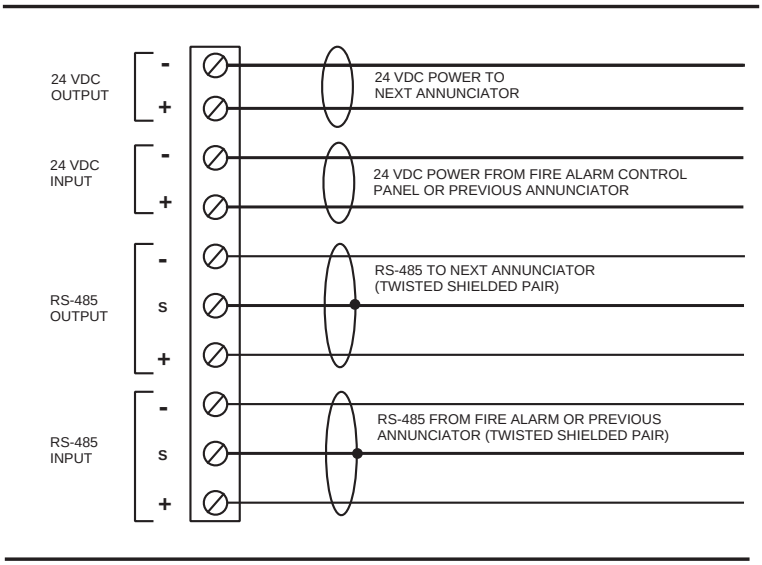
Controls	Displays
System Reset, Signal Silence Switches	AC On, Common Trouble, Signal Silence LEDs
Buzzer Silence, Lamp Test Switches	16 circuit status bi-coloured (red/amber) LEDs

Wiring Instructions

The RS-485 Wiring to the MR-2312-AT Module is recommended to be twisted shielded pair as shown in the diagram. The wire gauge may be:

- 22 AWG up to 2000 ft.
- 20 AWG up to 4000 ft.

The RS-485 wiring from the fire alarm control panel to the annunciator(s) must be point-to-point from the fire alarm panel to the first annunciator, then to the next annunciator, and so on. No star wiring or T-tapping is allowed. Each MR-2312-AT Annunciator Module has a 120 ohm end-of-line resistor on its RS-485 output terminals. This is removed on all except the last wired module.



The 24 VDC field wiring needs to be of an appropriate gauge for the number of annunciators and the total wiring run length. Use the *Current Drain for Battery Calculations* on page 5 to calculate the maximum current for all annunciators summed together.

Note: All circuits are power limited and must use type FPL, FPLR, or FPLP power limited cable.

WARNING: Accidentally connecting any of the 24 VDC wires to the RS-485 wiring **will result in damage** to the annunciator and/or to the fire alarm control panel to which it is connected.

Total Maximum Current for all Annunciators	Maximum Wiring Run to Last Annunciator								Max Loop Resistance
	18AWG		16AWG		14AWG		12AWG		
Amperes	ft.	m	ft.	m	ft.	m	ft.	m	Ohms
0.12	1180	360	1850	567	3000	915	4250	1296	15
0.30	470	143	750	229	1200	366	1900	579	6
0.60	235	71	375	114	600	183	850	259	3
0.90	156	47	250	76	400	122	570	174	2
1.20	118	36	185	56	300	91	425	129	1.5
1.50	94	29	150	46	240	73	343	105	1.2
1.70	78	24	125	38	200	61	285	87	1.0

DIP Switch Settings

Each annunciator needs to be assigned a unique, sequential address via DIP switches SW1-1, SW1-2, and SW1-3. DIP switch SW1-4 is used to allow disabling of some front panel slide switches.

SW1-1	=	Address A0\	>	Three digit address of the annunciator (address range 1 to 7 inclusive)
SW1-2	=	Address A1		
SW1-3	=	Address A2/		
SW1-4	=	When SW1-4 is “off”, the System Reset and Signal Silence slide-switches are always disabled, regardless of the operation of the keyswitch. The Buzzer Silence and Lamp Test slide-switches will operate with the use of the keyswitch. When SW1-4 is “on”, all four slide -switches on the front panel will operate with the use of the keyswitch.		

Set the annunciator address (see the manual for the fire alarm control panel being used), as follows in the table below:

Annunciator Address	SW1 DIP Switch Settings		
	SW1-1	SW1-2	SW1-3
1	ON	OFF	OFF
2	OFF	ON	OFF
3	ON	ON	OFF
4	OFF	OFF	ON
5	ON	OFF	ON
6	OFF	ON	ON
7	ON	ON	ON

Annunciators on a common RS-485 connection must be numbered sequentially; i.e.: 1,2,3,4, and not randomly such as 5,3,7. Note that not all annunciator “addresses” are valid for all fire alarm control panels. Refer to the fire alarm control panel manual for further information.

Jumper Selection

Jumper JP1 connects pins 2 and 3 and thus provides an eight bit checksum.

JW4

Jumper Intact = Buzzer silence & Lamp Test local function only. System Reset & Signal Silence are disabled.

Cut Jumper to have all remote functions operate.

Specifications and Features

Enclosure

- A standard 4-gang electrical box is used.

Electrical Specifications

- 24 VDC nominal voltage
- Slide-switch controls, LED indicators, and keyswitch to enable controls.
- Local buzzer, indicators (ac-on, common trouble, signal silence), and controls (system reset, lamp test, buzzer silence, signal silence).
- Annunciation of up to 16 points.
- Not expandable.
- Standby 35 mA Max., All LED's illuminated 140 mA max.

Current Drain for Battery Calculations

The lamp test feature draws the maximum normal current because it illuminates all lamps on one chassis at a time. Thus the currents are:

Normal Standby Current = 35 mA **Maximum Current** = 140 mA

Use the "normal standby current" for battery size calculations (see the fire alarm control panel manual for battery calculations) and includes the current drain for the Trouble Buzzer, Trouble LED, and one alarm LED. Use the "maximum current" to calculate the wire size (see the wiring instructions on page 3).

Warranty & Warning Information

Warning Please Read Carefully

Note to End Users: This equipment is subject to terms and conditions of sale as follows:

Note to Installers

This warning contains vital information. As the only individual in contact with system users, it is your responsibility to bring each item in this warning to the attention of the users of this system. Failure to properly inform system end-users of the circumstances in which the system might fail may result in over-reliance upon the system. As a result, it is imperative that you properly inform each customer for whom you install the system of the possible forms of failure.

System Failures

This system has been carefully designed to be as effective as possible. There are circumstances, such as fire or other types of emergencies where it may not provide protection. Alarm systems of any type may be compromised deliberately or may fail to operate as expected for a variety of reasons. Some reasons for system failure include:

•*Inadequate Installation*

A Fire Alarm system must be installed in accordance with all the applicable codes and standards in order to provide adequate protection. An inspection and approval of the initial installation, or, after any changes to the system, must be conducted by the Local Authority Having Jurisdiction. Such inspections ensure installation has been carried out properly.

•*Power Failure*

Control units, smoke detectors and many other connected devices require an adequate power supply for proper operation. If the system or any device connected to the system operates from batteries, it is possible for the batteries to fail. Even if the batteries have not failed, they must be fully charged, in good condition and installed correctly. If a device operates only by AC power, any interruption, however brief, will render that device inoperative while it does not have power. Power interruptions of any length are often accompanied by voltage fluctuations which may damage electronic equipment such as a fire alarm system. After a power interruption has occurred, immediately conduct a complete system test to ensure that the system operates as intended.

•*Failure of Replaceable Batteries*

Systems with wireless transmitters have been designed to provide several years of battery life under normal conditions. The expected battery life is a function of the device environment, usage and type. Ambient conditions such as high humidity, high or low temperatures, or large temperature fluctuations may reduce the expected battery life. While each transmitting device has a low battery monitor which identifies when the batteries need to be replaced, this monitor may fail to operate as expected. Regular testing and maintenance will keep the system in good operating condition.

•*Compromise of Radio Frequency (Wireless) Devices*

Signals may not reach the receiver under all circumstances which could include metal objects placed on or near the radio path or deliberate jamming or other inadvertent radio signal interference.

•*System Users*

A user may not be able to operate a panic or emergency switch possibly due to permanent or temporary physical disability, inability to reach the device in time, or unfamiliarity with the correct operation. It is important that all system users be trained in the correct operation of the alarm system and that they know how to respond when the system indicates an alarm.

•*Automatic Alarm Initiating Devices*

Smoke detectors, heat detectors and other alarm initiating devices that are a part of this system may not properly detect a fire condition or signal the control panel to alert occupants of a fire condition for a number of reasons, such

as: the smoke detectors or heat detector may have been improperly installed or positioned; smoke or heat may not be able to reach the alarm initiating device, such as when the fire is in a chimney, walls or roofs, or on the other side of closed doors; and, smoke and heat detectors may not detect smoke or heat from fires on another level of the residence or building.

•*Software*

Most Secutron products contain software. With respect to those products, Secutron does not warranty that the operation of the software will be uninterrupted or error-free or that the software will meet any other standard of performance, or that the functions or performance of the software will meet the user's requirements. Secutron shall not be liable for any delays, breakdowns, interruptions, loss, destruction, alteration or other problems in the use of a product arising our of, or caused by, the software.

Every fire is different in the amount and rate at which smoke and heat are generated. Smoke detectors cannot sense all types of fires equally well. Smoke detectors may not provide timely warning of fires caused by carelessness or safety hazards such as smoking in bed, violent explosions, escaping gas, improper storage of flammable materials, overloaded electrical circuits, children playing with matches or arson.

Even if the smoke detector or heat detector operates as intended, there may be circumstances when there is insufficient warning to allow all occupants to escape in time to avoid injury or death.

•*Alarm Notification Appliances*

Alarm Notification Appliances such as sirens, bells, horns, or strobes may not warn people or waken someone sleeping if there is an intervening wall or door. If notification appliances are located on a different level of the residence or premise, then it is less likely that the occupants will be alerted or awakened. Audible notification appliances may be interfered with by other noise sources such as stereos, radios, televisions, air conditioners or other appliances, or passing traffic. Audible notification appliances, however loud, may not be heard by a hearing-impaired person.

•*Telephone Lines*

If telephone lines are used to transmit alarms, they may be out of service or busy for certain periods of time. Also the telephone lines may be compromised by such things as criminal tampering, local construction, storms or earthquakes.

•*Insufficient Time*

There may be circumstances when the system will operate as intended, yet the occupants will not be protected from the emergency due to their inability to respond to the warnings in a timely manner. If the system is monitored, the response may not occur in time enough to protect the occupants or their belongings.

•*Component Failure*

Although every effort has been made to make this system as reliable as possible, the system may fail to function as intended due to the failure of a component.

•*Inadequate Testing*

Most problems that would prevent an alarm system from operating as intended can be discovered by regular testing and maintenance. The complete system should be tested as required by national standards and the Local Authority Having Jurisdiction and immediately after a fire, storm, earthquake, accident, or any kind of construction activity inside or outside the premises. The testing should include all sensing devices, keypads, consoles, alarm indicating devices and any other operational devices that are part of the system.

•*Security and Insurance*

Regardless of its capabilities, an alarm system is not a substitute for property or life insurance. An alarm system also is not a substitute for property owners, renters, or other occupants to act prudently to prevent or minimize the harmful effects of an emergency situation.

IMPORTANT NOTE: End-users of the system must take care to ensure that the system, batteries, telephone lines, etc. are tested and examined on a regular basis to ensure the minimization of system failure.

Limited Warranty

Secutron Inc. warrants the original purchaser that for a period of two years from the date of manufacture, the product shall be free of defects in materials and workmanship under normal use. During the warranty period, Secutron Inc. shall, at its option, repair or replace any defective product upon return of the product to its factory, at no charge for labor and materials. Any replacement and/or repaired parts are warranted for the remainder of the original warranty or ninety (90) days, whichever is longer. The original owner must promptly notify Secutron Inc. in writing that there is defect in material or workmanship, such written notice to be received in all events prior to expiration of the warranty period.

International Warranty

The warranty for international customers is the same as for any customer within Canada and the United States, with the exception that Secutron Inc. shall not be responsible for any customs fees, taxes, or VAT that may be due.

Conditions to Void Warranty

This warranty applies only to defects in parts and workmanship relating to normal use. It does not cover:

•damage incurred in shipping or handling;

•damage caused by disaster such as fire, flood, wind, earthquake or lightning;

•damage due to causes beyond the control of Secutron Inc. such as excessive voltage, mechanical shock or

•water damage;

•damage caused by unauthorized attachment, alterations, modifications or foreign objects;

•damage caused by peripherals (unless such peripherals were supplied by Secutron Inc.);

•defects caused by failure to provide a suitable installation environment for the products;

•damage caused by use of the products for purposes other than those for which it was designed;

•damage from improper maintenance;

•damage arising out of any other abuse, mishandling or improper application of the products.

Warranty Procedure

To obtain service under this warranty, please return the item(s) in question to the point of purchase. All authorized distributors and dealers have a warranty program. Anyone returning goods to Secutron Inc. must first obtain an authorization number. Secutron Inc. will not accept any shipment whatsoever for which prior authorization has not been obtained. NOTE: Unless specific pre-authorization in writing is obtained from Summit management, no credits will be issued for custom fabricated products or parts or for complete fire alarm system. Summit will at its sole option, repair or replace parts under warranty. Advance replacements for such items must be purchased.

Note: Secutron Inc.’s liability for failure to repair the product under this warranty after a reasonable number of attempts will be limited to a replacement of the product, as the exclusive remedy for breach of warranty.

Disclaimer of Warranties

This warranty contains the entire warranty and shall be in lieu of any and all other warranties, whether expressed or implied (including all implied warranties of merchantability or fitness for a particular purpose) And of all other obligations or liabilities on the part of Secutron Inc. neither assumes nor authorizes any other person purporting to act on its behalf to modify or to change this warranty, nor to assume for it any other warranty or liability concerning this product.

This disclaimer of warranties and limited warranty are governed by the laws of the province of Ontario, Canada.

Out of Warranty Repairs

Secutron Inc. will at its option repair or replace out-of-warranty products which are returned to its factory according to the following conditions. Anyone returning goods to Secutron Inc. must first obtain an authorization number. Secutron Inc. will not accept any shipment whatsoever for which prior authorization has not been obtained.

Products which Secutron Inc. determines to be repairable will be repaired and returned. A set fee which Secutron Inc. has predetermined and which may be revised from time to time, will be charged for each unit repaired.

Products which Secutron Inc. determines not to be repairable will be replaced by the nearest equivalent product available at that time. The current market price of the replacement product will be charged for each replacement unit.

WARNING: Secutron Inc. recommends that the entire system be completely tested on a regular basis. However, despite frequent testing, and due to, but not limited to, criminal tampering or electrical disruption, it is possible for this product to fail to perform as expected.

NOTE: Under no circumstances shall Secutron Inc. be liable for any special, incidental, or consequential damages based upon breach of warranty, breach of contract, negligence, strict liability, or any other legal theory. Such damages include, but are not limited to, loss of profits, loss of the product or any associated equipment, cost of capital, cost of substitute or replacement equipment, facilities or services, down time, purchaser's time, the claims of third parties, including customers, and injury to property.

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